CLAIMS:

1. An optical recording medium comprising a recording layer in which a record mark can be formed by projecting a laser beam thereonto, a first dielectric layer disposed on the side of the recording layer on which a light incidence plane through which the laser beam enters is present, a second dielectric layer disposed on the side of the recording layer opposite from that on which the light incidence plane is present, a heat radiation layer disposed on the side of the first dielectric layer on which the light incidence plane is present and a reflective layer disposed on the side of the second dielectric layer opposite from that on which the light incidence plane is present, the recording layer containing a phase change material represented by an atomic composition formula: $Sb_aTe_bGe_cMn_d$, where a is equal to or larger than 57 and equal to or smaller than 74, c is equal to or larger than 2 and equal to or smaller than 10, d is equal to or larger than 5 and equal to or smaller than 20, $(a + d)$ is equal to or larger than 74 and equal to or smaller than 81 and a/b is equal to or larger than 2.9 and equal to or smaller than 4.7, in an amount equal to or more than 95 atomic %.

2. An optical recording medium in accordance with Claim 1, wherein the heat radiation layer contains aluminum nitride as a primary component.

3. An optical recording medium in accordance with Claim 1, wherein the reflective layer contains Ag or alloy containing 90 atomic % or more of Ag.

4. An optical recording medium in accordance with Claim 1, wherein

the first dielectric layer is formed so as to have a thickness of 10 nm to 40 nm.

5. An optical recording medium in accordance with Claim 1, wherein the second dielectric layer is formed so as to have a thickness of 3 nm to 16 nm.

6. An optical recording medium in accordance with Claim 1, wherein there is written thereinto as data for setting recording conditions a pulse train pattern for modulating laser beam power between three levels including a recording power, an erasing power and a bottom power, wherein the number of pulses having a level equal to a recording power of the laser beam at the time of forming a record mark having a length of nT in the recording layer, where n is an integer equal to or larger than 2 and T is a length corresponding to one cycle of a reference clock, is determined to be $n/2$ when n is an even number and to be $(n-1)/2$ when n is an odd number.

7. An optical recording medium in accordance with Claim 1, wherein the phase change material represented by the atomic composition formula: $Sb_aTe_bGe_cMn_d$ and contained in the recording layer has such a composition that a is equal to or larger than 58 and equal to or smaller than 74, c is equal to or larger than 2 and equal to or smaller than 10, d is equal to or larger than 5 and equal to or smaller than 16, $(a + d)$ is equal to or larger than 74 and equal to or smaller than 79 and a/b is equal to or larger than 2.9 and equal to or smaller than 4.5.

8. An optical recording medium in accordance with Claim 7, wherein

a linear recording velocity equal to or higher than 14 m/sec and lower than 21 m/sec is written therein as data for setting recording conditions indicating a preferable linear recording velocity of data.

9. An optical recording medium in accordance with Claim 8, wherein data for setting recording conditions indicating that a ratio *Pe/Pw* of an erasing power of a laser beam *Pe* to a recording power *Pw* thereof should be determined to be equal to or larger than 0.27 and equal to or smaller than 0.51 are further written therein.

10. An optical recording medium in accordance with Claim 1, wherein the phase change material represented by the atomic composition formula: $Sb_aTe_bGe_cMn_d$ and contained in the recording layer has such a composition that *a* is equal to or larger than 57 and equal to or smaller than 70, *c* is equal to or larger than 2 and equal to or smaller than 10, *d* is equal to or larger than 11 and equal to or smaller than 20, $(a + d)$ is equal to or larger than 77 and equal to or smaller than 81 and *a/b* is equal to or larger than 3.3 and equal to or smaller than 4.7.

11. An optical recording medium in accordance with Claim 10, wherein a linear recording velocity equal to or higher than 21 m/sec and lower than 33 m/sec is written therein as data for setting recording conditions indicating a preferable linear recording velocity of data.

12. An optical recording medium in accordance with Claim 11, wherein data for setting recording conditions indicating that a ratio *Pe/Pw* of an erasing power of a laser beam *Pe* to a recording power *Pw* thereof should be determined to be equal to or larger than 0.26 and equal

to or smaller than 0.47 are further written therein.

13. An optical recording medium in accordance with Claim 1, wherein the phase change material represented by the atomic composition formula: $Sb_aTe_bGe_cMn_d$ and contained in the recording layer has such a composition that a is equal to or larger than 60 and equal to or smaller than 70, c is equal to or larger than 2 and equal to or smaller than 10, d is equal to or larger than 11 and equal to or smaller than 16, $(a + d)$ is equal to or larger than 77 and equal to or smaller than 79 and a/b is equal to or larger than 3.2 and equal to or smaller than 4.5.

14. An optical recording medium in accordance with Claim 13, wherein a linear recording velocity equal to or higher than 14 m/sec and equal to or lower than 33 m/sec is written therein as data for setting recording conditions indicating a preferable linear recording velocity of data.

15. An optical recording medium in accordance with Claim 14, wherein data for setting recording conditions indicating that a ratio Pe/Pw of an erasing power of a laser beam Pe to a recording power Pw thereof should be determined to be equal to or larger than 0.26 and equal to or smaller than 0.51 are further written therein.

16. An optical recording medium in accordance with Claim 1, wherein ID data for identifying the optical recording medium are written therein.

17. A data recording apparatus comprising ID data reading means for reading ID data written in an optical recording medium for identifying

the optical recording medium, a memory for storing data for setting recording conditions for each of ID data written in the optical recording media, and control means for setting recording conditions of data that, when the ID data indicates that the optical recording medium comprises a recording layer in which a record mark can be formed by projecting a laser beam thereonto, a first dielectric layer disposed on the side of the recording layer on which a light incidence plane through which the laser beam enters is present, a second dielectric layer disposed on the side of the recording layer opposite from that on which the light incidence plane is present, a heat radiation layer disposed on the side of the first dielectric layer on which the light incidence plane is present and a reflective layer disposed on the side of the second dielectric layer opposite from that on which the light incidence plane is present, and that the recording layer contains a phase change material represented by an atomic composition formula: $Sb_aTe_bGe_cMn_d$ where *a* is equal to or larger than 57 and equal to or smaller than 74, *c* is equal to or larger than 2 and equal to or smaller than 10, *d* is equal to or larger than 5 and equal to or smaller than 20, (*a* + *d*) is equal to or larger than 74 and equal to or smaller than 81 and *a*/*b* is equal to or larger than 2.9 and equal to or smaller than 4.7, in an amount equal to or more than 95 atomic %, selects data for setting recording conditions stored in the memory in accordance with the values of *a*, *c*, *d*, (*a* + *d*) and *a*/*b*.